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46 *Liberty*

# BETTER FRUIT

*The Pioneer Horticultural Journal of the Pacific Northwest*

OCT 19 1922

OCTOBER

222

Knapp Bratford  
U.S. Dept. of Agric.  
Bureau of Plant  
Industry (C)

## Features In This Issue:

Selecting Fruit for an Exhibit  
Receiving Our Fruit in England  
Nut Growing in the Northwest  
Selling Over the Roadside Stand  
Balanced Ration for Apple Trees  
Using Apples When at Their Best  
Goals for Apple Orchard Production

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The Single Copy

Southampton, Leading Gateway to England  
for Northwest Apples



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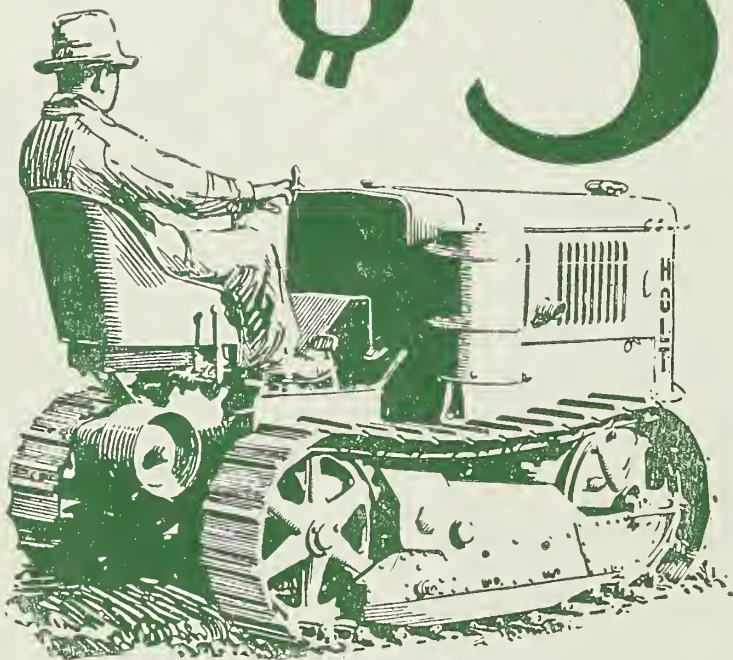
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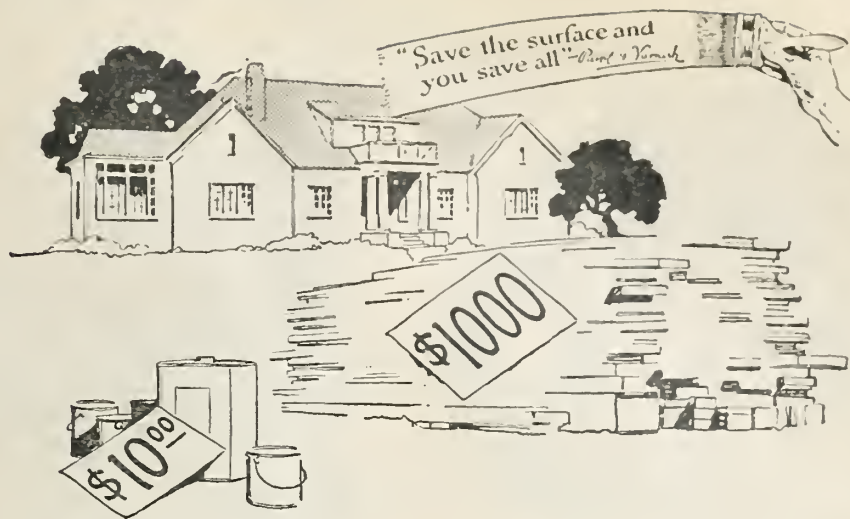
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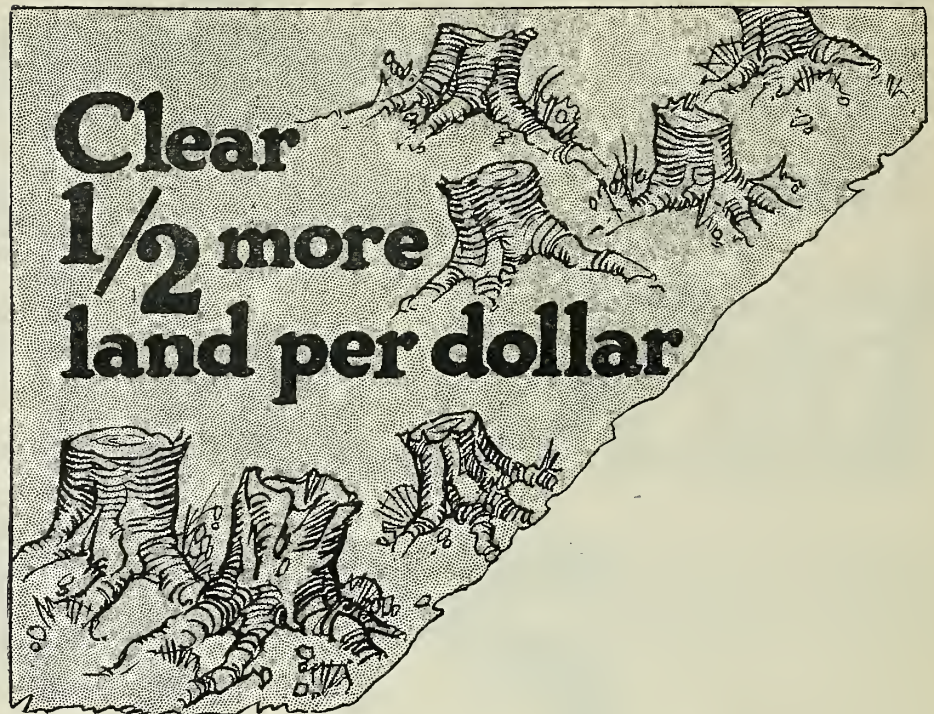
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the article on opposite page, also editorial. To help boost the game, BETTER FRUIT will grant permission to use and will furnish reprints of this table at nominal cost.

Put a few in each box of apples you pack—it will increase consumption of northwest apples.

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# BETTER FRUIT

*The Pioneer Horticultural Journal of the Pacific Northwest*

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PORTLAND, OREGON, OCTOBER, 1922

NUMBER 4

## Using Apples When At Their Best

By W. H. OLIN

*Supervisor of Agriculture, Denver & Rio Grande Western Railroad*

(Copyrighted 1922)

THE International Apple Shippers' Association, through its wide awake and forceful secretary, R. G. Phillips of Rochester, N. Y., has awakened nation-wide interest in Apple Day for October 31, each year. On this day every man, woman and child in this nation should eat an apple, have apple sauce for breakfast and partake of a good apple pie to top off the evening meal. My "better half" says, that "If an apple a day keeps the doctor away," what will seven apples do. Her ration includes apples for desert twelve months out of twelve.

The writer has had such an interesting time selecting these apples when at their prime and has found so many "off season" apples offered for sale by fruit venders all over the country that he decided apple consumers in cities and towns would appreciate a few suggestions from competent apple specialists on the subject, advising when apples are at their best for eating or dessert uses. One incident will be in point and illustrate the importance and value of this information.

James Agnew Hughes, a thoroughly posted man on apple varieties, was in Chicago a few seasons ago at or around Christmas time. He had four hours at his disposal and asked a fruit vender the privilege of "tending shop" at his stand for a few hours at no expense to the fruit man. After Mr. Hughes had explained his reasons for asking this privilege the fruit man gave place to him for three hours. Throngs were passing by, and by a trick of his own this resourceful man attracted the attention of passersby. He had purposely placed his rosiest, reddest apples in a conspicuous place and needless to say the color sold them. He checked the varieties sold at the end of three hours and Arkansas Blacks scored over 60 per cent of the sales with Ganos taking 25 per cent and

Jonathan, Spitzenberg and Delicious checking out the rest of the 100 per cent sold.

In that particular region Arkansas Blacks are not mellow until after January; Ganos are cooking, not eating apples at all, while at that season of the year, in Chicago, Jonathans and Delicious are unexcelled for eating apples.

IGNORANCE CUTS CONSUMPTION—Truly, "all is not gold that glitters." How many people know that a certain apple tastes fine in October and November but after Christmas is mealy, off flavor and wholly undesirable. They may not know what apple it is and decide no apples are good in the late winter. Thus apple consumption is unjustly cut down and the grower and everyone who handles this fruit from the orchard to the final consumer "gets stung" on the weak sales and weaker consumption.

The purpose of this article is to give apple consumers the time when our leading commercial types of apples are at their best for both juiciness and flavor,

as given by apple specialists from all over the nation. We must remember that locality has much to do with shortening or prolonging the period named and therefore make allowances for it. One thing is certain: that while cold storage prolongs the period dessert apples are good, the bringing out to normal temperatures in the spring and early summer, when released from storage, permits the quality to go down.

The schedule given herewith applies to the Northwest and the Rocky Mountain group of states. The writer has not space to give each one's report but he acknowledges receiving statements on when the apples named are at their best, within their respective states, from the following well known authorities:

J. R. Cooper, department of horticulture, University of Arkansas, Fayetteville, Ark.; Professor W. H. Wicks, in charge plant industry and marketing, state department of agriculture, Boise, Idaho; R. A. McGinty, associate horticulturist, Colorado Agricultural College, Fort Collins,

VARIETY	DESSERT	COOKING	PROPER PERIOD FOR USE
Arkansas Black	no	yes	January to May
Bellflower	yes	yes	October to November
Ben Davis	no	yes	January to June
Black Twig	no	yes	December to May
Delicious	yes	no	November to January
Early Red June	yes	no	August and September
Gano	no	yes	December to March
Grimes Golden	yes	yes	November to January
Gravenstein	yes	yes	August to October
Jonathan	yes	yes	November to January
Maiden Blush	yes	yes	September to November
McIntosh Red	yes	no	October to December
Newtown Pippin	yes	yes	December to May
Rome Beauty	no	yes	November to May
Snow Apple	yes	no	October to January
Spitzenberg	yes	yes	November to March
Stayman Winesap	yes	yes	December to February
Talman Sweet	no	yes	October to January
Wagner	yes	yes	October to February
White Winter Pearmain	yes	yes	December to March
Winter Banana	yes	no	November to January
Winesap	yes	yes	January to June
Yellow Transparent	yes	yes	July to September



Colo.; Prof. F. C. Sears, professor of Pomology, Massachusetts Agricultural College, Amherst, Mass.; V. R. Gardner, professor of horticulture, University of Missouri, Columbia, Mo.; Professor R. D. Anthony, professor of pomology, Pennsylvania State College, State College, Pa.; W. P. Massey, secretary Virginia Horticultural Society, Winchester, Va.; S. H. Boddinghouse, apple department, Associated Fruit Company, Chicago, Ill.; L. D. Bachelder, division of orchard management, University of California, Riverside, Cal.; R. G. Phillips, secretary International Apple Shippers' Association, Rochester, N. Y.; Professor Roy Marshall, associate professor of horticulture, Michigan Agricultural College, East Lansing, Mich.; C. D. Mathews, state horticulturist, North Carolina Agricultural Experiment Station, Raleigh, N. C.; Professor T. H. Abell, acting horticulturist, Utah Agricultural College, Logan, Utah.

**P**ROFESSOR F. C. SEARS calls attention that in the east the Baldwin apple is at its best November 15 to March; Northern Spy, December to May, and Rhode Island Greening, November to January. He makes the comment on proper period to use a Ben Davis apple by saying, "about two years after growing." It is to be born in mind fruit grown in one climate may differ in maturity and quality from the same type or variety in another region.

The purpose of this article as stated, is to call attention of the housewife and the general consumer, within the region where BETTER FRUIT is most read, to the fact that there is a right and a wrong time to use a certain apple—that some apples cook well, but are poor eaters. One celebrated restaurant of the west specializes on baked apples. It only furnishes this delicacy when Rome Beauty apples can be secured, of the quality the chef will accept. This reaches from Hallowe'en time to May 1.

Could more apple consumers and fruit venders as well, learn to know apples better, they would be able to have good apples at nearly all times, enjoy them and thereby increase the sale of good apples just when they are in their prime. This encourages better apple production and we shall thereby make better economic use of our greatest and most universally grown American fruit—the apple.

In the Old Dominion is a very choice apple, little known in the west. It belongs to the great Pippin family and, because of the region where it grows to great perfection, it is known up and down the South Atlantic coast as the Albemarle Pippin. Virginia has given to the nation some very choice apples not the least of which are the Grimes Golden and the Albemarle Pippin. It is believed the

Yellow Newtown or Newtown Pippin of the northwest is the same type of apple as Albemarle Pippin.

**APPLES EVERY MONTH**—When all is said and done we realize that each one has his or her favorite apple. That is the one that this particular individual can most enjoy. When this is gone, what next? The table is designed to help select the second, third and fourth choice and show when this apple is or should be at its best. Cold storage helps prolong the excellence of one's favorite apple and extend its successful distribution. It is indeed a great benefactor to the grower and the distributor as well as to the apple consumer. One can now have good dessert as well as good baking and cooking apples every month throughout the year through cold storage and refrigeration distribution. Few fruits give to the human system such tonic and tone as does a well matured and juicy apple. This is only true when the apple is just in its prime and its flavor is at its best.

**H**AVE your apple calendar; mark in it the particular apples best suited for each month and buy your dessert and cooking apples for use at that time. The apple adapts itself to so many table uses in salads, cakes, pies, and those rare old apple dumplings like mother used to make, that one can scarcely name all the helpful, appetizing dishes of which apples form some component part.

The "Housekeeper's Apple Book," written by L. Gertrude Mackay, names nearly 100 dishes that become table delicacies through use of apples.

Says Lelia W. Hunt, for many years head of Foods and Nutrition, State College of Washington: "The apple is a combination of refreshing acids, substantial bulk and stimulating juices. Its possibilities of food and drink are wonderful. It is concentrated power which may be supplied toward the establishment and preservation of health. Let the body become sluggish and no better physician can be summoned to its aid than a liberal fruit dietary. Let the individual grow ænemic and the liver become torpid, no better medicine can be administered than fruits. The apple is both food and medicine for man. If more were eaten in the average home, better health conditions would result."

The writer has been unable to find the author of the following poem, but it so fully expresses his own sentiments he wishes to close this article with this breezy apple toast:

#### THE BULLIEST FRUIT OF THEM ALL

AUTHOR UNKNOWN

Seems like I'm crazy for apples—

Been without any so long;

Now that it's time for the fruit to be prime,

Say, I just burst into song.

Other fruit's good in its season,

But, ah, how I welcome the fall,  
That part of the year when the apples are here,  
The bulliest fruit of them all.

There's a tang to the taste of an apple,

A zest like the keen autumn breeze,  
With a savor that's won from the smile of the sun

When it ripened the fruit on the trees.

Oh, I've hungered and thirsted for apples,

With the appetite keen of a boy,  
And the season which brings in this viand of kings,  
For me is a season of joy.

For autumn means rosy-cheeked apples,

And apples mean cider and pie,  
And dumplings and such, which you can't praise too much,

No matter how hard you may try.

So here's to his Highness, the Apple,

Who comes with the crispness of fall,  
When my palate's athrill as I take in my fill  
Of the bulliest fruit of them all!

### Shipping Via Canal

By J. E. MAC MASTERS

**F**OR many years Great Britain has been a heavy importer of all kinds of fruit, as home production has never been sufficient to meet the requirements of its markets. Not so many years ago all the apples shipped from this country to England were grown in the Eastern and Middle Western states, and shipped in barrels, while today the most popular varieties and those commanding the highest prices, are the box apples grown in Washington, Oregon and British Columbia.

Until 1920 all northwestern apples destined for British and continental consumption were shipped in refrigerator cars to the Atlantic seaboard, and there transhipped to steamers equipped with coolroom space. In 1920 the Royal Mail Steam Packet company, which had been carefully studying the movement of fruit to Europe, decided that the time was ripe to enter this trade with a direct service from the Pacific coast to Great Britain and the continent. They at once came to an arrangement with the Holland-American line to establish a joint service of great 12,000 ton vessels, equipped with coolrooms and refrigerator space, for the transportation of fresh fruits, meats and fish.

The outcome of this service has been so successful that six large new motor ships of 12,000 tons each are now being constructed for this trade—the first two of which, the *Loch Katrine* and the *Dinteldyk*, have already made their maiden voyages to this coast. Each of these vessels is equipped with two refrigerator engines, which are in charge of a certified refrigeration engineer and a complete staff of mechanics.

Colonel E. J. M. Nash, Pacific coast manager for the Royal Mail Steam Packet  
(Continued on page 27)



# Receiving Our Fruit in England

By WAYNE M. FRENCH

Secretary-Treasurer Simons, Shuttleworth & French Company, New York

**A** MERICAN progressiveness has become a by-word pretty well throughout the world. The recent developments of the shipping facilities in Portland and Seattle, made necessary by the increased production of lumber, grain, canned goods, desiccated fruits and vegetables, and most notable of all perhaps, apples and pears in the state of Washington and Oregon, are examples of our native foresight, energy, adaptability and business acumen.

Whether because of natural talents which have forced recognition through the centuries, or because of the power of our example, the old world can still show us the direction in many things. A case

today is delivered by rail, or motor van, in London tomorrow morning.

The London and Southwestern Railway has a network of tracks all over the south of England. It owns all the docks in Southampton and tracks are run onto them all, so that, for convenience, dispatch, and economy of handling, the port is quite without an equal.

The plan of development referred to contemplates the expenditure of \$10,000,000 in the building and equipment of piers, warehouses, drydocks, sheds, and all the necessary paraphernalia to make still more complete what is already one of the foremost ports and harbors in the world. It is to be expected that English

in the steamship *Kinderdijk* and was discharged at those piers.

Thirty thousand boxes of apples were discharged here from one steamer last season in 12 hours, the fruit was auctioned the next day and by night the bulk had been shipped to various parts of Great Britain by rail, motor van, or steamer. Records of last season's sales in Southampton place that market second only to Glasgow in average gross realizations for northwestern box apples in volume.

Attracted by the modern and up-to-date methods of exhibiting the fruit, the bright and cheerful atmosphere of the brand new auction room which is adjacent to all the piers and in which any importer can have his fruit sold, the promptness with which their purchases are dispatched and delivered to surrounding territory, buyers come to Southampton from all markets within 500 miles to attend advertised sales of fresh fruit imported from the United States, Canada, Spain, South Africa, Australasia, etc. So it is that fruit merchants are in the front rank in the building up of a greater, better port; and so it is that the fruit industry in Southampton is in a way to gain full advantage of the impetus given to business generally by the creation of facilities of the highest order in modern business development.

Although there has never been any doubt that London has a wonderful capacity for American fruit, the wonder is that the city and surrounding territory does not require greater quantities. One difficulty has been that there are few, if any, large markets where handling costs and delays incident to distribution of foodstuffs are as great as in London. The city therefore became unpopular in the minds of many American consignors of fresh fruits to the United Kingdom. It is fortunate that now a way has been found to overcome many of the difficulties which London has long presented.



This interior view of a big Southampton pier shows familiar brands of northwestern apples in the foreground

in point is the program of extension under way by the London and Southwestern Railway which will make Southampton, England, one of the greatest ports for import and distribution in the world.

Prior to 1915, many of the largest and fastest steamers plied between Southampton and New York. During the war Southampton was used exclusively as a war base and commercial business was forced elsewhere. Now again the port is the terminus of many of the most important steamship lines plying between Great Britain and the United States, Australasia, South America, South Africa, and the Mediterranean. Included among these are the White Star Line and Cunard Line, which operate a weekly six-day passenger and freight service between Southampton, Cherbourg and New York. Fast trains carry passengers from the ship's side to London in less than two hours, while freight discharged from steamers

merchants will co-operate with the railway and harbor authorities to build up the trade of the port and take advantage of the improved facilities for conducting big business.

**W**ITH the growing importance of our export apple trade, the growers of the northwest will be interested in this new outlet for their fruit, through which the supplies for London and the south of England will eventually be distributed. Last season approximately 62,250 boxes of apples were shipped from our Pacific ports to Southampton, via the Panama canal, and probably a still larger proportion of the boxed apples shipped abroad this season will be discharged at one of the Southampton piers shown in the airplane view on the front cover of this issue. One of the illustrations herewith shows a portion of the first direct cargo of apples which went through the canal

## Freight Big Factor

E. S. Ryerson, apple grower, at Dayton, Wash., received the last returns from his apple crop recently and has published a table showing costs, freight, selling expenses, storage charges, etc. His net returns from the 60-acre crop amounted to \$48,472.77, the apples selling for a total of \$90,977.81 on the Chicago market. The freight charges were by far the largest item of cost in marketing the apples, the total being \$26,022.28, which was \$433.70 per acre. His crop amounted to 31,120 boxes.



# Balanced Ration for Apple Trees

By A. V. AMET (*Ah-May*)

*Agriculturist of Marine Products Company, Tacoma, Wash.*

**T**HERE is little argument among the initiated against the use of fertilizer for apples; it is rather a question of what kind of fertilizer to use, what time of the season to apply, and how much is required for highest yields of superior quality.

In light of past and present day knowledge and experience of leading experiment stations of the world and successful growers of apples, a complete well balanced ration of all the necessary plant food elements is as essential for growing any crop as a mixed feed is for poultry, or a complete diet is for human beings.

It must be there—sums up the answer to the query, shall I apply nitrogen, phosphoric acid, potash, or lime, which is the fourth plant food element requiring attention of successful growers when shown to be needed. It must be there, and in available and soluble forms at the exact period that the trees must utilize it to produce profitable crops. This, there is no argument about.

**A**BOUT the best advice that can be given to a grower is to select a reliable fertilizer concern and place the problem of fertilization in its hands, thereby securing the concern's laboratory and field experience over a wide territory and profiting by its previous experience with certain well-balanced and complete commercial fertilizers under similar conditions. Any reliable concern depends entirely upon its increase in business from the results of its fertilizers in the field. Too many growers in the past, as is usually the case in sections where the use of fertilizers is not generally practiced, play with their crops, experimenting to learn that water is wet and that the sun shines, at a sacrifice of results, money, and the success of the apple growing industry.

Every grower should investigate thoroughly the productive possibilities of his soil, then pursue a systematic outline of fertilization. Classify and analyze is the keynote in the matter of gathering data from other orchards to compare with results from your own. Do not think of your orchard as a whole, but as various units. A block of Winesaps is not to be compared with Rome Beauties; nor a block of an early variety with a late one. To get results from any orchard it is essential that the various varieties be planted in blocks. Production and quality fruit depend largely upon the ratio maintained between the amount of nitrogen, phosphoric acid and potash supplied in the fertilizers. The mere addition

of given quantities of these principal elements may be sufficient to obtain the best results.

The writer knows from practical experience that fertilizer effects are not additive; that is, the increase in the yield of crop is not proportional to the amount of so-called essential ingredients of the fertilizer added, but is due materially to the source from which these essential elements are derived, and the influence which certain fertilizer compounds have upon other factors which, in turn, increase the plant food supply in the soil.

The problem of maintaining the fertility of an orchard, so far as commercial fertilizer is concerned, depends on the selection of a mixture that will supply valuable ingredients other than nitrogen, phosphoric acid, and potash, upon the content of which the price is fixed.

In growing apples you cannot get maximum results from using hit-or-miss methods. A systematic fertilizer program must be followed regularly and consistently. Assuming certain conditions the grower can calculate the requirements of fertilizers.

As a fertile soil is the theatre of ceaseless activities, so is a living tree a scene of constant motion. The reception, change, and surrendering of certain aeriform and liquid substances are continually taking place in it. If they were not its growth and life would cease. Study and observation have shown that apples thrive best on slightly alkaline, or neutral soil, and if abandoned on such a soil they make a healthy growth, and produce to the limit of the resources of the soil.

If, on the contrary, apple trees are planted on a sandy soil, the tendency of which is to become acid, they will, if abandoned, soon cease to exist. The lesson we learn from this is that we should supply the soil and plant with basic materials, since it will not flourish in a soil that does not contain a liberal amount of potash, lime, magnesia iron, and phosphoric acid.

Lime may be added in the form of bone phosphate, when fertilizers containing bone, tankage, whale, fish, etc., are used, and magnesia is found in many salts of potash as double sulphate of potash and magnesia. Iron usually exists in ample amount in the soil, but is dependent upon reaction with other compounds to become available to the tree.

**I**F WE were to burn the wood of the apple tree and before doing so separated the leaves and twigs last made from

the older wood, we would find by analysis of the ashes that the leaves and twigs contained the largest amounts of these inorganic, or basic materials. As a matter of fact, carbon hydrogen, oxygen, and nitrogen are the main factors in the growth of the plant—the cloth part of the umbrella—yet, it is absolutely dependent upon these elements for its complete development, the basic materials in the likeness to the umbrella being the steel framework and handle.

Potash, lime, magnesia, iron and phosphoric acid influence or bring about the formation of starches, sugars, gums, organic acids, and other compounds that create production, growth, and ripening of apples.

Of these the most important are the phosphoric acid compounds, which scientific research and practical observation have proven are the vital factors in giving vitality to bloom and maturing fruits.

When we speak of quality in apples we mean not only appearance, skin and color, but eating quality, abundance of juice, flavor and ability to ship as well.

If we dry and burn a given quantity of apples of inferior quality and an equal weight of a superior quality and examine the ashes we ascertain the proportions of basic materials present in the ash of each. Then, if we examine the soil on which each sort was grown we shall find the ratio in which the constituents of the ashes are present in available forms. This is the only practical help that soil chemistry is able to give us in the matter of fertilization. Further research might discover that these basic materials were present in larger volume in the soil where the inferior quality of fruit was grown, but that they were in forms insoluble, or unavailable to the tree, as, for instance, potash in the form of silicates, phosphoric acid as it exists in phosphate rock, lime in the form of gypsum which is readily available to legumes but not to apple trees.

Potash, lime and phosphoric acid are usually found in the ashes of apples, and likewise in the leaves and twigs, in about equal amounts, the phosphoric acid combining with lime to form phosphate. If we learn anything at all from this, it is that phosphoric acid should be supplied in the fertilizer in neutral forms. Raw bone from animals, or tankage with bone predominating, should be composted with green superphosphate to make a neutral

(Continued on page 20)



# Goals For Apple Orchard Production

By E. G. Wood

Extension Specialist in Horticulture, Washington State College, Pullman

THE PURPOSE of this paper is to present data in regard to production and yields and to suggest ways and means whereby production of the average orchard may be brought more nearly to the level of the highest yielding ones. There is very little data available. The most recent and most interesting is that compiled by the Wenatchee Valley Traffic Association and printed as the testimony of O. B. Shay before the Interstate Commerce Commission. It would be extremely valuable if we had similar information for other districts but at present we must take Wenatchee as being representative of the others.

According to Bureau of Crop Estimates, statistics total 1914 apple production of the Pacific Northwest was about one-sixteenth of the total production of the United States. The apple production has steadily increased until in 1921 the four Northwest states produced 41 per cent of all the apples and shipped 52 per cent of the total commercial production of the entire United States.

In 1914 a survey of 87 orchards in the vicinity of Wenatchee, Olds, Monitor and Cashmere was made by the United States Department of Agriculture and reported in department bulletin No. 446. In the 87 orchards covered by this survey the trees ran from 7 to 11 years old and averaged 81 trees per acre. Covering a six year period, 1909 to 1914 inclusive, the average yield per acre was 593 packed boxes or 7.3 boxes per tree. This was considered by the U. S. Department investigators as a fair average yield for the valley.

In 1915 a like survey of 120 orchards in the Yakima Valley, 64 of which were in the vicinity of Yakima, in the Nob Hill, Broadway and Fruitvale areas, and 56 of which were in the vicinity of Zillah, was taken. This survey showed that in the 120 orchards studied the trees ran from 7 to 22 years of age with an average of 12.6 years. About Zillah there were two groups of orchards, one 8 to 12 years and the other 18 to 22 years. The younger orchards appeared to be the best cared for and the most profitable. The average number of trees per acre was 73.6. The average yield per acre over a period of five years, 1910 to 1914 inclusive, and considering only trees over seven years of age, was 432 packed boxes or 5.87 boxes per tree.

MORE RECENT DATA—While the average yields just referred to were cor-

Every orchardist whose heart is in the business is eager to know what should be the standard of production and how closely his own yields and returns approximate this standard. Professor Wood gives the goals in this article, the substance of which he presented before the summer meeting of the Washington State Horticultural Association. The facts are timely and have the background of actual surveys. The methods by which greater yields are possible are also plainly pointed out.

rect for the orchards studied and no doubt represented average yields for the immediate sections in which the surveys were made, data compiled by the Wenatchee Valley Traffic Association on the production of the entire Wenatchee district, shows that the average production over a five-year period ending two years later, 1912 to 1916 inclusive, was about one-third that amount. To be exact, it was 194 boxes per acre, or 2.64 boxes per tree, considering trees of bearing age—that is seven years or older.

Two reasons may be suggested as accounting for this discrepancy. Possibly the orchards studied by the U. S. Department lay in the most productive part of the valley, and, secondly, only orchards managed as representative commercial apple orchards of the valley were considered in the surveys. But when the total production of all the orchards of bearing age is divided by the total number of acres of such orchards, it tells a different story. Unquestionably there

were and are too many orchards not managed as a representative commercial orchard of the valley.

A second five-year period, 1917 to 1921 inclusive, covered by the figures of the traffic association shows a total production of 40,488,700 boxes, which is an average of 270 boxes per acre or 3.67 boxes per tree. This is an increase in yield of 39 per cent over the previous five-year period. The highest yield was reached in 1921 and was 350 boxes per acre. The next highest was 310 boxes per acre in 1919. The biggest factor in this increase in average yield per acre has been the increased age of the trees.

An important fact brought out by the U. S. Department survey in the Yakima Valley in 1915 is that yields increased rapidly with the age of the trees until they were nine years old and that thenceforth the increase was much more gradual.

Table Showing Yields per Acre from Trees of Different Ages in Yakima Valley

Age of Trees	Yield in Packed Boxes	Boxes per tree
6	175	2.32
7	311	4.23
8	350	4.74
9	453	6.14
10	454	6.10
11	469	6.51
12	505	6.83

At that time there were not enough records of orchards over 12 years of age to furnish reliable figures.

TREES on good soil and with good care should continue to increase in yield as rapidly between the ages of 9 and 12

Table Showing Yields of Apple Orchards in Wenatchee District (From Testimony of O. B. Shay)

Period	Total Production Packed Boxes	Acres of Bearing Fruit	Yield per acre Packed Boxes	Yield per tree Packed Boxes
5 years 1912-1916	17,296,600	12,000 (in 1912)	194	2.64
5 years 1917-1921	40,488,700	32,250 (in 1921)	274	3.67
10 years 1912-1921	57,785,300		242	3.29

Increase in yield per acre for second period, 39 per cent.



as between the ages of 6 and 9 and at 12 years be producing at least 10 packed boxes per tree. When trees in orchards which are managed as the representative commercial apple orchard of the valley produce only three-fourths of a box more at 12 years of age than they did at nine, there is something wrong with the orchard management.

While every orchard operation has its influence, the greatest factors are, First, that there are too many trees per acre, and, second, that the soil fertility has not been maintained. At the time of the survey in Yakima (1915) there were two systems of soil management in vogue, clean cultivation and mulch crops, cut for hay. Forty-five of the 120 orchards studied had been in mulch crop from three to five years. The orchards in mulch crop, cut for hay, produced on the average from 21 to 42 packed boxes less per acre than did the ones still in clean cultivation.

The virgin soil, while rich in mineral elements, had only enough nitrogen to

average of 73 trees per acre, as in Yakima, and 81 trees per acre, as in Wenatchee, commercial orchards 10 or 12 years old should not contain over 48 to 55 trees per acre. Planted 30 by 30 feet there will be 48 trees per acre on the square system and 55 on the hexagonal.

While the exhaustion of the nitrogen and humus in the soil was unquestionably the principal cause of checking the increase in yield at nine years of age, undoubtedly the check in the increase of production would not have come so soon with fewer trees per acre and more soil for each tree to draw from. With trees not more than 25 feet apart they become crowded when they are 10 or 12 years old and part of the trees should be removed. If this is not done trees will have reached their maximum production per acre at about 12 years and it will be extremely difficult to prevent a decrease in yield as well as in size and quality of fruit.

On the other hand high yields are

While removal of part of the trees would cut down the crop for the next year or two there is no doubt but that it would increase the production of the next five year period.

There are about twice as many trees to the acre in the northwest as in western New York. As trees become older some of them will necessarily be removed and the longer this is delayed after the trees are 10 or 12 years old the more the permanent trees will suffer as a result. A survey of Ontario county, New York, where trees ranged from 20 to 40 years old, showed that the production was even higher where there were fewer trees per acre. Where trees were 30 by 30 the average yield was 172.8 bushels; 35 by 35, 180 bushels; and 40 by 40, 173.4 bushels. The increased spread of the tree more than makes up for the smaller number per acre.

We are often asked how high trees should be allowed to grow in commercial orchards. The more room trees have, up to 35 feet, in which to spread, the easier it will be to keep them lower to the ground and to prune them so as to maintain a good distribution of branches filled with fruiting wood, exposed to the light and bearing to the full capacity of the tree.

The varieties grown is another factor which has an important bearing on the yield. Growers are paying more attention to the tree characteristic and the ability of varieties to bear regularly and heavily. A variety of high quality is not sufficient, it must be a high producer. Before maximum production in all the orchards of any one district is reached, some of the low yielding varieties, such as Spitzenberg and others must be eliminated.

**POSSIBLE PRODUCTION**—The possibilities of high production may be determined by a study of some of the highest yielding orchards. In the Wenatchee district, Captain R. G. Graham's ten-acre orchard which is mostly Stayman, with a few Spitzenberg, Jonathan, and Winesap, is well known for its regular high production, having produced an average of 923 $\frac{3}{4}$  packed boxes per acre over the four-year period, 1917 to 1920. It is now 18 years old and reached its highest production at 15 years of age, when it produced 11,000 boxes in 1918.

By the use of cover crops for a period of nine years the nitrogen content of the soil was built up until it was more than double that of the virgin soil. Another orchard noted for its high production is W. F. Kennedy's 4 $\frac{1}{2}$ -acre orchard of Stayman, Black Twig, Rome Beauty, Jonathan and Black Ben, which has a record production of over 1095 boxes

(Continued on page 20)

(From Testimony of O. B. Shay.)

Average	200 boxes Per Acre	300 bxs. Per Acre	400 bxs. Per Acre	500 bxs. Per Acre	600 bxs. Per Acre	800 bxs. Per Acre	1000 bxs. Per Acre
5 years 1912-1916	\$1.5141	\$1.1344	\$ .9478	\$ .8305	\$ .7546	\$ .6596	\$ .6026
5 years 1917-1921	2.1216	1.6273	1.3781	1.2280	1.1288	1.0043	.9295
10 years 1912-1921	1.9430	1.4798	1.2491	1.1091	1.0168	.9011	.8316
Above figures include 8 per cent interest at \$1500.00 per acre, amounting per box to the following:							
	.6000	.4000	.3000	.2400	.2000	.1500	.1200

maintain normal tree growth and production for about nine years. Orchards from which alfalfa hay was cut, as well as those in continued clean cultivation, ceased their normal increase in production at nine years of age and for the next three years the average increase was only one-fourth of a box per tree per year. Nitrogen and humus were the limiting elements, so far as the soil was concerned, and alfalfa cut for hay for periods of three to five years still further checked the increase in yield.

It is only in the last two or three years that growers generally have recognized the value of growing a legume cover crop and leaving all of it on the soil to act both as a mulch and to build up the humus and nitrogen content of the soil. Even this very summer alfalfa hay was removed from many orchards when its nitrogen content alone, to say nothing of its value as humus, would have been worth more to the orchard than the price it brought as hay.

The evil of having too many trees per acre is a serious one. Instead of an

not opposed to high quality and high grade. It is entirely possible to secure even a higher quality apple and at the same time a higher yield. Proper pruning, fertilization and soil management, thinning, spraying, correct irrigation and other cultural practices which increase the commercial yield also increase the quality of the fruit.

**EFFECTS OF CLOSE PLANTING**—Where trees are crowded the pruner cuts them back unmercifully to prevent interlacing of branches. This repressive system of pruning tends to interfere with the natural habit of bearing and consequent high yields. Trees shade each other and shut out the abundant supply of light which must reach all the spurs in all parts of the tree if normal production is to be maintained. In their effort to grow into the light, trees will become too tall and there is a tendency for fruit to form only on the upper portions of the tree. Yields are reduced and orchard operations become more difficult and expensive.

The trees must have room to expand laterally and make a normal growth.



## Selling Over the Roadside Stand

By DORA CATE CRABTREE

Milton, Oregon

A SIDE line on a small farm which brings in from \$2200 to \$3700 a year would be termed a successful side line. Such is the record of a little fruit and vegetable stand maintained on the farm of A. Avey of Freewater, Oregon.

Mr. Avey offers for sale at the stand any garden or orchard products of the farm which he deems it advisable to dispose of in this way. Prunes, apples and other fruits are packed and shipped in season in a wholesale manner. But fruit which ripens too early or too late for the general shipping, or products raised for home use only, but all of which are not needed at home are sold at the stand. Thus the stand is not at all the chief business of the ranch, but only a side line as is the vegetable garden or chicken flock on the average farm.

The enterprise had its beginning ten years ago when Mr. Avey decided to cash in on the idea he gained while operating a fancy fruit and vegetable market in Nebraska that a product placed in full view sells more readily than one advertised only on a bulletin board. He placed close to the highway in front of his farm home a wagon load of watermelons and sold practically all of them in one day.

He at once swept and cleared a place under a large locust tree and prepared to conduct his stand on a permanent basis. His daughter, Catherine, then ten years old, was at once introduced to the perplexities of change making, and book-keeping and has each summer since presided at the stand as sales lady.

The largest total receipts for a single summer was \$3750. This averaged \$47.50 for every day the stand was operated. Even the smallest year showed a



Miss Catherine Avey's smile is a big factor in success of the "Locust Tree" stand

total of \$2200 taken in. Many single days throughout each summer shows a daily total around \$150. For the ten years in which this roadside stand has been operated during the summer months something over \$25,000 has been taken in.

The "Locust Tree Stand" as it is known in the community was the first of its kind along the Oregon-Washington highway and for many years had practically the entire business. Other farmers

seeing the advantage of such a method of selling have adopted the plan until this year nearly every other farm from Milton-Freewater north to the state line has its little fruit and vegetable stand. While the increase in the number of stands has cut down the amount of business for any one stand yet the increase in tourist travel from year to year and the increasing popularity with residents of the nearby towns of this method of buying still leaves a profitable business for all.

Mr. Avey counts the advantages of this method of disposing of farm products far more important to his farm than would be indicated simply by the gross returns. It has enabled him to sell fruit, vegetables and melons produced in too small quantities for packing and shipping. It practically eliminates the usually large factor of cost of marketing. Many products too ripe to ship are just right to sell in this way. He receives a fair market price for his products without deductions for middlemen or commission men. He further finds the buying public usually appreciates this opportunity to buy direct from the producer, thereby effecting a saving as well as insuring freshness of products.

### Exposition Plans

PLANS are now well formulated for the Pacific Northwest Fruit Exposition, to be held in Seattle November 11 to 19, at the Bell street terminal. The board of directors has been completed and its personnel includes men from practically every fruit district of the northwest. The executive committee is as follows: John A. Gellatly, Wenatchee, president; H. M. Gilbert, Yakima, vice-president; R. T. Reid, Bellevue, secretary; Asahel Curtis, Seattle, treasurer; Mr. Winnie Braden, Seattle, manager, and A. A. Oles, Seattle.

The premium list has gone to the printer and is probably ready for distribution by this time. BETTER FRUIT has received a copy, but it is obviously impossible to give even an adequate summary here. It must suffice to say that a remarkable array of cash prizes and trophies have been arranged not only to cover apples and pears, but grapes, miscellaneous collections, booth displays, community exhibits, canned fruits, et cetera.

Mrs. Braden, formerly of Portland, has written that she will extend personal invitation to Oregon growers to participate. Everyone interested should send to the Pacific Northwest Fruit Exposition, 810 Arctic Building, Seattle, for a copy of the premium list.

I have been a reader of BETTER FRUIT for a number of years and have found much useful information in every number so I look for the next one to come.—  
W. E. Hill, Victoria, B. C.



A. Avey's "Locust Tree" stand near Freewater, Ore., over which fruit and vegetables amounting to from \$2200 to \$3700 are sold each summer



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VOL. XVII, NO 4

## Winning Customers

No article BETTER FRUIT has published in a long time has impressed us as more valuable in its applications to the apple industry than that in this issue by W. H. Olin, on "Using Apples When at Their Best." True, Mr. Olin addressed himself more to the housewife than to the apple grower, but the tip for the producer and seller is so obvious there was no need of having the article worked over for our readers.

Who can say how tremendously markets for northwestern boxed apples would be expanded if only the housewives, restaurant men and caterers of the nation were fully informed about our varieties and the time to buy and use them? Can you even begin to visualize the immensely greater demand at the fruit stands if the consumer always carried away the ripe, matured apples, luscious to the taste as we of the northwest eat them, instead of the apple that loomed

out most attractively from the pile?

We have absolutely no patience with the fellow who says northwestern boxed apples are doomed forever to be doled out to eastern consumers two, three or six at a time over the fruit stands. But, suppose for the moment, we grant that he is correct. What have we done to tell the consumer which apple he should select from the stand in November and which in March?

Isn't this a question to set you thinking? Doesn't it deserve more consideration wherever and whenever our horticulturists foregather?

Those who are accustomed to thinking on a given subject for more than two consecutive minutes at a time will see the far-reaching magnitude of Mr. Olin's suggestions. The basis rests in the fact that ultimate consumers in the east know next to nothing about our varieties. Once you fix this point in mind it becomes evident that a fundamental and richly potential phase of apple exploitation—marketing is the simpler word—has been badly overlooked.

"Eat Wenatchee Apples" may be an excellent slogan, but how does it work out when the easterner eats one too long before or after its proper stage of maturity? Practically insures that he will pick one of another color and brand next time if we know anything about human nature.

Suppose the apple-ignorant city man happens to pick out the right apple at the right time—what happens if he continues to buy that same variety for the next ten or twelve weeks in succession?

An intelligent campaign of information might easily help northwestern apples win a million staunch friends every season. The least the grower and his associations may do this fall would be to place copies of Mr. Olin's table or a similar one in their apples as they are packed. Next, all can join in devising means by which

those fruit-stand proprietors can be made to work for best interests of the industry—not against them as at present.

When that is accomplished BETTER FRUIT will insist that the time is at hand to educate some millions of housewives of the east and middle west to the fact that ripe, luscious apples from our orchards are not too expensive to be purchased by the box for the desert table—not when the right variety is selected in the right month.

## Shipping on "Hunches"

Now is the time to recall some of those post-season, post-mortem statements citing the losses to apple growers last year through hit-or-miss shipping methods. It is hardly necessary either to state that heavier crops the country over will multiply such marketing dangers this season.

Lest you may have forgotten suppose we quote a typical statement of the kind we mean. It was W. B. Armstrong of the Washington State Farm Bureau who said this:

"Last fall a half dozen shippers of this region, with no knowledge of the relation of demand and supply in the Southwest, but acting solely on 'hunches,' succeeded in tying up about 90 cars of Jonathan apples at Fort Worth, Texas, resulting in a loss of certainly not less \$100,000 to growers of this region."

In the main, not much progress has been made toward elimination of such wasteful methods since last season. Over at Yakima they have taken an important forward stride in this matter by forming a sort of central clearing house of information about out-going shipments. This is the most promising solution of the problem of which we have heard. The Yakima plan is certainly worth watching.

ERRATA—*Transpositions in the apple packing chart last month made color requirements for striped varieties incorrect. See correct list on page 23.*



### Picric Acid Offer

THE bureau of public roads, United States Department of Agriculture, is making plans to release, for shipment to farmers this fall, millions of pounds of picric acid for agricultural explosive purposes, such as land clearing.

This distribution of high grade agricultural explosives to farmers by the government is to be without cost except seven cents per pound for drying and cartidging expense, plus the cost of the freight, and is in the nature of a dividend on some of the expense of the war and the war taxes, inasmuch as this explosive is surplus war material which congress has directed shall be turned over to the farmers of the country.

Originally about 12,000,000 pounds of the picric acid was available as war surplus. There now remains approximately 5,000,000 pounds to be distributed this fall. The bureau of public roads urges farmers in all sections of the country who can use this explosive to apply now for it, so that the fall shipping schedules may be made up for the states. The details of the methods of distribution can be secured from any state agricultural college and farmers who desire to obtain the explosive are urged to get in touch with these colleges or the agricultural state extension services.

Picric acid is a comparatively safe explosive and is used in the same way that other agricultural explosives are used. It has several advantages over commercial explosives, in that it keeps indefinitely, without deteriorating, it is not affected by heat or cold, and it does not cause headaches, or other ill effects, when used in the open air. Because of its greater cost of manufacture, it is not a competitor with commercial dynamite. It is being distributed for the purpose of increasing interest and activity in land clearing.

### Lower Rate Sought

Under direction of the International Apple Shippers' association a campaign has been started in the northwest seeking a rate on shipments of apples to Europe of 75 cents a box. This is a 25 per cent reduction, the old rate being \$1 a box. H. M. Gilbert, Yakima, Wash.; Conrad Rose, Wenatchee, Wash.; A. R. Currie, Seattle, Wash.; H. F. Davidson, Portland, Ore., and A. W. Stone, Hood River, Ore., have been named as a committee to push the campaign. In addition to seeking the reduced rate they are trying to have waived the rule requiring advance payment of transportation charges.

Please change my mailing address and be sure and mail me every copy. I certainly enjoy your publication more than anything else I read in the fruit line.—  
*H. M. Luttrell, Stratford, Wash.*

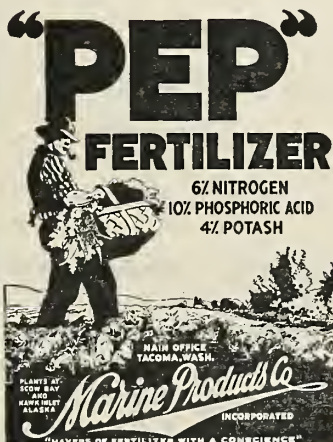
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## Selecting Fruit For An Exhibit

By F. C. REIMER

Director Southern Oregon Experiment Station, Talent

**F**RUIT is judged according to type. The fruit should be typical of well grown fruit of the variety in shape, size and color. A Newtown, a Spitzenberg, a Jonathan, and a Delicious each have a characteristic form; hence in selecting get specimens as near the characteristic type of the variety as possible. The size of the fruit should be typical of well grown fruit of the variety, not too large nor too small.

Some people have the impression that very large fruit is most likely to win first prize. The largest fruit seldom wins because it is not typical. A Newtown the size of a cocoanut is interesting, but it is a monstrosity, not a first class fruit. Newtowns and Spitzenbergs which will pack from 100 to 150 per box are more representative of that variety than larger or smaller fruits. The specimens should be well colored for the variety. A typical Newtown is greenish or greenish yellow. At least 75 per cent of a Spitzenberg, a Jonathan, or a Delicious should be covered with red with the remainder of the fruit an attractive yellow.

**UNIFORMITY**—Most exhibitors fail because the five specimens on the plate or those in the box lack uniformity. The individual specimens may be perfect, but there is too much variation between them. They may vary in size, form, or color. A company of soldiers in uniform looks better than in civilian clothes; and a company uniform in size better than a lot of giants and runts mixed. In some orchards most of the Newtowns are roundish in form, and the orchardist should select all of this type. In other orchards most of the fruits are more oblong and here this type should be selected. Don't place round and oblong or round and flat apples on the same plate or in the same box. Not only is uniform fruit of better appearance it is a requisite in the modern commercial pack.

All specimens should be free from frost marks, spray injury, branch rubs, bruises, cuts, stem punctures, or abnormal russetting. These are not part of well grown fruit. Never permit a fruit without a stem or with a broken stem to go on exhibition. Such a fruit looks like a rooster without tail or with a broken tail. Do not leave any portion of the fruit spur or leaves attached to the stem, as these are parts of the tree and not the fruit. Leaves go well with a bouquet, but not with edible fruit.

**FREEDOM FROM PESTS**—The modern fruit grower prides himself on producing fruit free from insect and fungous pests. The modern epicure also does

not relish eating codling moth and San Jose scale with his apples. There is nothing in the fruit kingdom which looks more repulsive to the fruit judge than the ugly hole made by the codling moth or the fiery red blotches painted by the San Jose scale. The judge is unmerciful when he scores such fruit.

It is admitted that no fruit grower will exhibit fruit with a conspicuous codling moth hole in plain view. But often the judge finds a codling moth hole and the excreta in the calyx where it is overlooked by the casual observer or careless exhibitors. This means a worm inside gnawing at the vitals of the apple and later disgusting the unlucky purchaser, and certainly injuring the market. Such fruit is a menace to the fruit industry, a reflection on the grower, and a victory of a tiny codling moth over superior man. For this reason the stem end and especially the blossom end should be critically examined in selecting your fruit, and in case your eyes are not keen use a hand lens. Remember that while the codling moth usually does not camouflage matters he oftens digs in in the most inaccessible places and in the most invisible manner. The fruit judge prides himself in finding such an enemy.

Examine the apple carefully for scab since a scabby apple can no more win in a fruit exhibit than a scabby man in a love affair. Sometimes a scab spot is no larger than a pinhead, nevertheless it is scab. If in doubt throw it out. The judge will use a hand lens in examining such spots and he will not give you the benefit of the doubt.

**POINTS SUMMARIZED**—To summarize: Select fruit typical of the variety in size, color, and type; all the specimens as uniform in size, color, and degree of ripeness as possible; free from frost marks, spray injury, rubs, bruises, hail pecks, cuts, stem punctures, and abnormal coloring; and above all means, free from pests such as codling moth, San Jose scale, scab, rots, blister mite, mildew, and dirt.

Visit the exhibit room after the exposition, on a day which will be announced in the press, and learn why you received the prizes or failed to get them. This will be the most valuable part of the exposition. Remember that the chief object of the exposition is its educational feature. If we are not already producing the most perfect fruit in America we should learn how to do so. We have the soil and the climate; all that is necessary is for man to do his part.

Don't fail to make an exhibit, even if you have only one variety. Often the smallest grower produces the best fruit.

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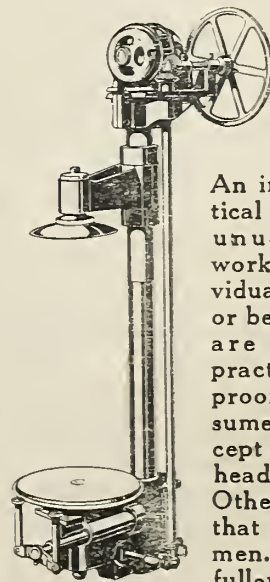
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## Nut Growing in the Northwest

By M. L. DEAN

Olympia, Washington

**O**UR pioneers in the Eastern states found in the native forests, nuts growing everywhere. Chestnuts, walnuts, hickory nuts, and other varieties they cracked before their fireplace in the winter evenings. They fattened their hogs on the acorns and beechnuts. The Indians dried the acorns, ground them into flour in their rock mortars and made a porridge and mush from it, an article of food which is still used by some Indian tribes.

Today those forests are destroyed and the crops of nuts have gone with them. The demand for this cheap food product has increased at a wonderful rate, but the supply is mostly furnished from the European countries. The fact that the different nuts grew wild in so many sections of the country demonstrated the fact that they are adapted to our varied soil and climatic conditions. With the increased scarcity of hardwood lumber we can proportionately mark the decrease of the nut, until the timber product is now looked upon as a source of revenue as well as the nuts. Recent growing demand for nuts has encouraged commercial development until vast areas in some states are devoted to the growing of the different nuts.

The commercial cultivation of nuts has not been developed to any extent until recent years. But today we find in many parts of the United States orchards and groves of both foreign and native nuts which are already producing valuable profits.

Among the first nuts which received attention from a cultivated commercial standpoint was the almond. Louisiana, Texas, and New Mexico seem to be the only states in which this nut can be produced with any degree of success lying east of the Rocky Mountains. Its close relation to the peach makes it very tender and not able to withstand the winters of the Eastern section of the United States. There are varieties, however, which seem to thrive successfully here and in Klickitat County, Washington, there are some plantings which are proving quite successful. California probably leads in the production of this nut, yet it is a leading commercial product found growing successfully in Oregon, Utah and Arizona.

The American walnuts are indigenous to a great portion of the Middle West and Eastern part of the United States. In the East and Middle West the pioneers planted walnut and hickory trees in their fence rows for permanent fence posts.

The demand for walnut timber for airplane propellers and gun stocks created

a price much in excess of what the lumber had previously brought for furniture purposes.

In some instances the trees in these fence rows during the past war period brought more money than the entire farm was worth. The butternuts are also included in this class, but little attention has been given to the growing of them for the nuts, although the timber has always been highly prized. All sections of the country were closely hunted for trees of this kind. This demand has encouraged the discussion of walnut plantings to the extent that in some sections of the country it has been taken up with considerable activity.

**PERSIAN WALNUT**—The Persian walnut, which in the common trade is known as the "English walnut," is the principal commercial walnut in the United States at the present time. It has a thin shell, a very plump and highly flavored meat. Being a native of the regions of the Caspian sea, in Persia, the Greeks and Romans carried in to Southern Europe before the Christian era and it was brought to America by the early settlers of the country. The conditions in the Eastern portions of the United States do not seem to be desirable for the cultivation of this nut, but on the Western Coast it seems to thrive wherever planted under proper conditions.

Filbert planting is being developed to quite an extent in some of the counties on our Western Coast. One great drawback to the commercial growing of these nuts in the past has been the problem of pollination; but experimental work has been carried on to the extent that a mixture of varieties is found to be desirable, and it is quite well known what the proper mixture should be.

In such parts of the west as the chestnut can be successfully grown, there seems to be an attractive demand because of the fact that the chestnut blight is rapidly devastating the natural chestnut forests of the Allegheny regions, and wherever they can be successfully grown on the Pacific Coast there is certainly a bright outlook for those who make the venture. They should, however, be extremely careful in securing stock to be sure that they are planting none but healthy trees. The Japanese varieties, especially the Paragon, have gained considerable prominence in some parts of the United States. Probably the John Lewis Childs' Nurseries of New Jersey about thirty-five years ago were responsible for the dissemination of this nut into the United States, and this variety first en-



couraged the commercial cultivation in the United States.

The hickory trees and pecans as known to the trade, are to be found in most of the territory between the Rock Mountains and the Atlantic Coast. A few years ago extensive pecan groves were planted in the Southern parts of the United States, probably Texas and Alabama leading in the point of acreage. The trees (seedlings) were secured and the thin, soft-shelled varieties were grafted into them with a good degree of success. Today millions of pounds of the product are produced in Texas and other of the Southern states and orchards can be found of these nuts covering hundreds of acres in extent.

**NUT IMPORTS**—That the growing of nuts should be encouraged on the Pacific Coast is easily demonstrated by the demands in our local markets. I find that the one port of Seattle during 1917 received shelled almonds, 60,198 pounds; shelled peanuts, 22,703,209 pounds; not shelled, 4,515, 643 pounds. Not that we can grow peanuts in Washington to any degree of success from a commercial standpoint, but if other nuts were produced, they would take the place of much of this product in the trade. Walnuts shelled, 509,738 pounds; not shelled, 676,510 pounds; walnuts not shelled, 65,999 pounds; other nuts not shelled, 5654 pounds.

In 1918 from January 1 to July 1, the markets received in chestnuts not shelled, 473 pounds; peanuts shelled, 44,112,721 not shelled, 676, 510 pounds; walnuts shelled, 201,842 pounds; not shelled, 143,266 pounds; other nuts not shelled, 51,421 pounds. These nuts were practically all imported from Oriental points, Manchuria, China, Japan, etc., and shows the immense opportunity for a market for all of the nuts which can be produced on the Pacific Coast.

In 1917 Seattle received from California 5009 bags of walnuts weighing 100 pounds each to the bag, or twenty carloads of 250 sacks each. In 1918 we received from California 6220 bags of walnuts or about twenty-five carloads, and five carloads of almonds. There are in the state of Washington today about 12,000 nut trees which have arrived at the age of bearing and in most instances it is to be found that they are producing good profitable crops and are as yet free from many of the pests which have attacked trees in other sections. To my mind, nut growing is one of the attractive branches of horticultural development which is to be considered at the present time. The market's demand for cheaper food products and the value of the nut for this purpose certainly makes it worth while.

The experimental stage of nut growing

in Washington and Oregon is past. In many of the fertile valleys can be found different varieties of nut trees thriving and producing crops of nuts of high quality. Climatic conditions, soil variations and moisture precipitations are such that the most desirable conditions for

the successful growing of any of our North American nuts can be found.

Western Washington and western Oregon today offer a rich field for development of this kind. Reconstruction and reclamation are the by-words of today.

(Continued on page 26)



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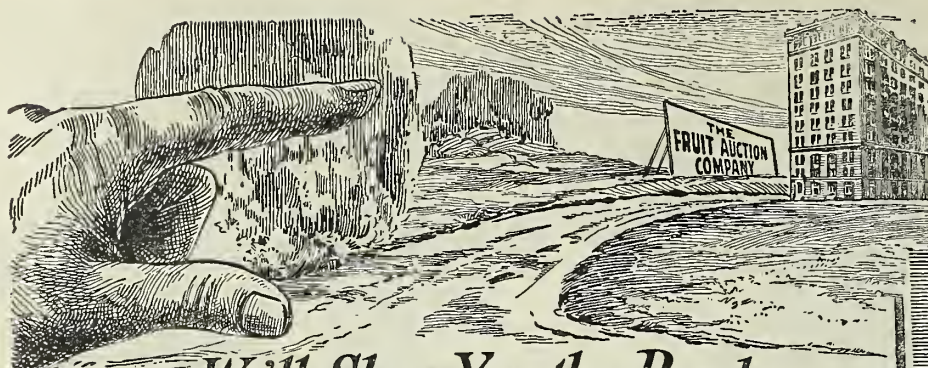
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Write today for interesting booklet,  
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Established 1896

202-208 Franklin Street, New York City

## Our Inquiry Department

I HAVE raised a small crop of walnuts and would like to know the proper method of bleaching them if you will be kind enough to print it.—J. B. R., Oregon.

Here are two methods of bleaching the nuts. Dissolve 25 pounds chloride of lime and 18 pounds sal soda in 50 gallons of water. Let it settle and draw off the clear liquid. Add 1¼ pounds of sulphuric acid. Mix well. Brush

dirt off the walnuts and dip in this solution five or ten seconds. Then dry at once.

Another way is to moisten the shells by a fine water spray or by low pressure steam and put the nuts on trays in the sulphur house. Burn half a pint to a pint of sulphur, leaving the nuts in the fumes 15 to 30 minutes. If they are not dry by that time, get them dry before sacking.

PROFESSOR THORNBUR gave an article in BETTER FRUIT setting forth the merits of a new raspberry he has developed. Will you kindly mention it.—L. F. C., Washington.

W. S. Thornber, Lewiston, Idaho.

AS A SUBSCRIBER to BETTER FRUIT and a small fruit grower I am asking you to print in an early issue a practical way of keeping cider sweet, without affecting the flavor injuriously.—M. R. M., Montana.

For your benefit and that of others interested in this problem we are reprinting the approved method of preserving cider from an issue of one year ago. You will find it below.

## Preserving Sweet Cider

SWEET cider or grape juice can be preserved in sweet condition indefinitely if the directions furnished by specialists in the bureau of plant industry, United States Department of Agriculture are carefully followed.

As rapidly as the juices are pressed from the fruit place them in clean vessels. Wooden barrels or tubs which have previously been thoroughly scalded will serve the purpose very well, although earthenware jars, if available, should be used. These are allowed to stand over night, or for not more than 12 to 14 hours, in the coolest location possible so that much of the solid matter suspended in the juice will settle to the bottom. Glass jars or bottles must be thoroughly sterilized to receive the juices, which are drained off without disturbing the sediment.

If fruit jars are used they should be fitted with sterilized caps and rubbers, and the cap tightened down as far as it can be turned. If bottles using crown caps are used, the bottles are capped as they are filled, using caps which have been sterilized. In case bottles closed with corks are used, set the previously sterilized corks in place in the bottles and tie them down loosely with a strong cord so that steam may escape. To relieve the pressure during sterilization the bottles should be filled only to the neck.

A wash boiler or other convenient vessel can be prepared for a "water bath" by fitting it with a wooden rack on which the containers filled as above indicated with juice are placed. The bath is filled with cold water and the bottles or jars, if closed, are inverted or laid on one side so as to wet the inside of the caps thoroughly with juice. If bottles closed with corks are used, the bottles must stand upright in the water, which should come up to the necks of the bottles.

The heating is then started. A thermometer is hung so that it will dip for half its length into the water, which is heated gradually until its temperature reaches 175 degrees F. Allow the bottles or jars to remain in the water for 30 minutes if quart or half-gallon jars are used, and from 40 to 45 minutes if gallon bottles are used. Then remove from the stove and immediately tighten down the caps of the jars, if jars are used. If corked bottles are used, drive the corks firmly into the necks; invert each bottle so as to wet the cork thoroughly with the



hot juice; then complete the sealing by cutting the corks off smoothly and pouring hot paraffine over them.

Place the product in a dark, cool storage room. Watch it for a period of a week or more for the beginning of fermentation, which will be indicated by frothing at the surface of the liquid. If any bottles show signs of fermenting, return them to the wash boiler and repeat the process exactly as before, loosening the tops, of course, before heating begins, and closing down firmly again before the liquid is allowed to cool.

**W**HEN the juice is placed in storage the suspended solid matter will gradually settle out and sediment will accumulate in the bottom and on the sides of the jars. In the course of two or three months at ordinary temperatures, this settling will be completed and the liquid will be fairly clear. It may be used directly from the bottles or drawn off into clean bottles, which should be sterilized before they are filled and which should then be corked and pasteurized by heating to 170 degrees F. for the same length of time as in the first pasteurization. If rebottling is necessary or desirable the second heating should never reach the temperature to which the juice was first heated; otherwise, the clarification which is secured by settling and decanting into new containers will be defeated, as a second process of sedimentation will occur. If the temperature be kept five degrees below that reached at the first heating, this result will be avoided.

A reliable thermometer is a necessity for this work, as it is important that the juice be heated to 175 degrees F. in the first heating, in order to destroy the organisms which would otherwise cause fermentation. It is equally important that the juice should not be overheated, as this will give it a cooked taste which is decidedly unpleasant to many people.

## Carthage Strawberry Plan

**T**HE "Carthage (Mo.) Strawberry Plan," as adopted by the Carthage Chamber of Commerce in February, 1922, resulted in the special planting of 247,250 strawberry plants in the Carthage community.

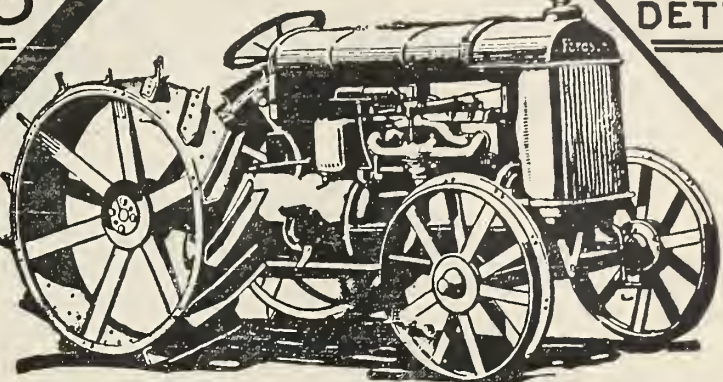
The "Carthage Strawberry Plan" is in short, a practical scheme of business co-operation in that the local chamber of commerce furnishes the plants to the growers, the plants to be paid for by each separate grower on his own responsibility when the first berry crop is picked. A quarter of a million plants were set out, at the special price of \$2.50 per thousand. This plan added 100 acres to the strawberry area of the Carthage vicinity.

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We do not sell or advertise spectacular specialties, just honest-to-goodness fruit trees and vines propagated from the highest types of individual parent stock in the West.

We are participating members of the Nurserymen's Bud Selection Association, a nurserymen's organization that has subscribed and used more than \$30,000 in legitimate, conscientious investigation and selection work in commercial orchards in California during the past few years. Our customers get the advantage of such selection and elimination work as the association offers as the work goes on from year to year.

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For 19 years we have been engaged exclusively in the nursery business. Ideal soil and climatic conditions backed up by expert care and a conscientious effort to render good nursery service has meant the growing of a uniform product and quality throughout.

Our trees are found in commercial and home orchards in every district in the West where fruit is grown. That Washington Nursery trees are good trees is evidenced by the fact that our customers come back to us year after year with repeat orders as they increase their orchard holdings.

How about trees for your planting? Are you setting a new orchard, or making additions to the old one?

Let us tell you how our clean, vigorous, thoroughly matured trees will save money for you and produce a profitable bearing orchard.

A line from you will find us at your service.

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Company**  
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Your tree men since 1903

## Goals for Apple Orchard Production

(Continued from page 10)

per acre for the four-year period, 1917 to 1920. It is 17 years old and yielded its highest production in 1918, when it was 14 years of age.

It will be noted that each of these orchards contain a few trees of a low yielding variety—Spitzenberg in the one case and the Black Twig in the other.

**PRACTICAL GOALS FOR AVERAGE GROWER**—From a study of the statistics herein presented and from observation of the orchards and the conditions throughout the state, we may set practical goals which the average orchardist should reach. With orchards nine years old or more no grower in the Wenatchee district or Yakima valleys should be satisfied with the condition of his orchard or his management of it until his average annual production is over 600 boxes per acre. Of course some communities will experience more difficulty in reaching this goal than others, but it is practical and can be attained. Growers in the Walla Walla district should not be satisfied with their orchards unless they are producing an average of at least 500 packed boxes per acre. The Spokane valley grower is working under less favorable conditions, but his goal should not be less than a yearly average of 400 boxes per acre.

The question of yields is an important one because the grower cannot make his orchard pay with a low average production. The testimony of Mr. Shay before the Interstate Commerce Commission shows that the cost of production per

box is decreased as the yield per acre is increased. Note the table.

His exhibit sheet No. 8 shows that the average return per box received by the grower for the past 10 years was \$1.33. A man whose ten-year average was 200 boxes sold at an average loss of 61 cents, if interest at eight per cent on a valuation of \$1500 per acre is included in his costs. While the man whose ten-year average was 600 boxes sold at an average profit of 32 cents.

Mr. Shay's exhibit sheet shows that the average yield for the past ten years in the Wenatchee district was 270 boxes, that the average net cost per box exclusive of any interest was \$1.19 leaving a difference of 14 cents per box which was a return of 2.27 per cent interest on a valuation of \$1500 per acre. Obviously, the management of the average orchard needs to be improved so as to obtain higher yields.

## Balanced Rations for Apple Trees

(Continued from page 8)

mixture so that the tree will get both the lime and the phosphoric acid.

For the same reason, organic materials should be composted with superphosphate that the phosphoric acid in the latter may neutralize the alkalinity of the former, thus conserving the phosphoric acid. It is a well established fact in soil chemistry that phosphate of lime and sulphate of potash by their presence in the soil affect the formation of organic acids with which they afterwards enter into combination.

It is these combinations that further the growth and ripening of fruits by the formation of starches, sugars and gums, for, as is well known, the acid taste is lost in apples as they near maturity, and a sweet taste, or a delightful mingling of acid and sweet, often spoken of as the "perfume," gives it eating quality.


Shipping quality in the Pacific Northwest apple centers has been too long neglected—so much so that it is being commented on by the produce trade which has been disappointed in the poor quality and inability of some shipments to stand up.

Along this line, a letter from H. A. Huston, of New York, under date of July 12, 1922, says, in part: "I have no doubt the nitrogen interests be active in the vineyards of California, as they have been in the apple-growing sections of Washington and Oregon. From the reports that are coming to me and requests for help and suggestion in regard to improving the shipping quality of the ap-

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ples of that section, it appears that altogether too much nitrogen has been used in proportion to the phosphoric acid and potash available. They seem to have been using nitrate of soda and sulphate of ammonia and alfalfa crops, and they complain that apples intended for export are rejected by the steamers, because inspection shows that when they reach the East Coast they are not in condition to ship further; and certainly I know from my own experience that a good many apples, pretty poor in quality, are coming through, although they look fairly well on the outside."

This letter was written and sent to the writer after he had left the San Joaquin territory of California where he had been working among the grape owners, and is merely a passing comment on the apple shipping quality difficulty that is being experienced at the present time, due to certain interest fostering the use of simple fertilizers, and particularly nitrate of soda, sulphate of ammonia and alfalfa crops theory.

**C**OMplete fertilizers were intended to increase production and improve the quality. The vital factors that influence soil fertility affect production and quality, but an apple tree can be grown and brought to the bearing stage without complete manures being supplied to the soil, even upon the poorest quality of soil where apples can be grown.

In fertilizing for production and quality, it is evident, therefore, that we should supply both phosphoric acid and potash in sufficient amount, estimating, if we can do so, the amount to be removed by the crop of fruit, and the amount the tree will require to store up in the twigs of bearing wood to feed the crop that follows. We should provide for what the soil requires after classifying and analyzing it, as it is a law of nature that there should be a steady accumulation of phosphoric acid and potash in the soil and a certain amount of these added to the soil will be reverted to less soluble forms for future use.

There has been so much research along these lines that the average grower can gauge his own requirements. You should put your fertilizer question on a plantfood basis; on what you can get out of your fertilizer in crop grown per acre. Intelligent fertilization is a treatment of the soil as well as the supplying of food for the crop, or the tree requisites.

Sources of all plant food are matters of extreme importance, as it is the residuum which the fertilizer compounds leave behind in the soil that may affect the soil fertility.

It is a question, pure and simple, of

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Portland, Oregon

supplying the trees with a given amount of plant food from correct sources, properly proportioned according to best accepted standards, tested out and proven to be adapted to such a soil as your orchard is planted on. Abandon the idea of buying fertilizer by the ton on purely a price basis.

The analysis fixes the price only from a sales standpoint. The real value of a complete fertilizer is to be reckoned in dollars and cents only by the results in the field when used in a systematic and regular fertilizer program over a number of years. These results are dependent

### Rubber Stamps for Fruit Boxes

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upon the sum total of available plant food that the tree may assimilate.

Simple used in hit-or-miss method of fertilization may give some temporary results. In this connection M. C. Burritt in *Farmers' Bulletin* No. 491 says: "It is easily possible to overdo the use of nitrogen and produce wood growth



# A Chocolate Sauce

that  
covers  
every-  
thing

Here is a little kitchen idea that many housewives are discovering for themselves: Instead of stopping in the middle of meal-making to prepare some chocolate sauce, why not have a jar or two [home-made] within arm's reach on the pantry shelf? The recipe at the right will take only ten minutes to make. And—you'll have a supply of chocolate sauce that will save you *hours!*

You know how a generous "spilling" of chocolate sauce will glorify a commonplace cup custard. And even a simple cornstarch pudding [or some cooked rice] topped off with this delicious sauce makes a fine, healthful dessert.

Since 1852 D. GHIRARDELLI CO. San Francisco

**How to make it:** Mix 1 cup sugar with 1 cup Ghirardelli's Ground Chocolate. Add  $\frac{1}{2}$  cup boiling water,  $\frac{1}{8}$  teaspoon salt, and cook 10 minutes or until thick. When cold add 1 teaspoon vanilla. Store in tightly covered jar. This makes 1 pint of chocolate sauce. Send for our recipe booklet.



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### Prune and Cherry Trees

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at the expense of fruit buds and fruit. Potash and phosphoric acid are found in larger proportions in the leaves and fruit."

Another recognized authority, E. P. Powell, has this to say: "It is the opinion generally (in 1905) that nitrogenous requirements are usually taken care of. But phosphoric acid and potash are the constituents likely to be needed, to produce largest yields of superior quality. Potash is consumed in all parts of their trees; in the production of sound wood, and healthy leaves, and rich fruit. Nitrogen is used by the tree to develop mass yield. Phosphoric acid is essential to both quality and yield."

Since then, the eastern apple sections of which Mr. Powell was speaking have learned that the application of complete fertilizers is essential for the most profitable culture of apples. The necessity of the use of well balanced rations is no longer questioned.

What we need in the Oregon and Washington orchards is that which will assist nature, without stimulating artificial growth. We can not quite say that the slower the growth the better, but we do not wish very rapid growth even in the apple orchard. If we are to secure steady, strong, and well-ripened growth we must not use too much quick acting chemical fertilizers, but rather the slowly decomposing organic materials from the barnyards, packing houses and fish canneries.

The cumulative effects of fertilizing with proper materials should always be taken into consideration. Mixtures in which bone predominates have a tendency, through soil reactions, to make insoluble compounds of potash available. These, in turn, assist in the creation of organic acids that break down other insoluble compounds. For this reason bone mixtures should contain high potash contents for most efficient results.

Combinations of organic blood, tank-ages, whale, fish meals, and other organic materials should be studied with a view to adding the necessary available plant food for the immediate crop, and yet creating fertility to produce the bearing wood of the crop that is to follow.

The real secret is told. It must be there, in soluble and healthful forms at the exact time the trees need it. A well balanced ration for the trees will give success in producing highest yields of superior quality—well balanced as to the ratio of plant food, likewise as to sources and consequent soil reactions—this is the real secret of successful soil management.

A liberal use of liming materials helps prevent formation of clods.



Packing Chart  
Corrections

Mechanical changes in the annual packing chart printed last month, without knowledge of the editors, brought errors in the listed requirements on color of striped or partial red varieties. The corrected requirements are printed below and we trust that packers using the chart will paste this corrected list over the incorrect one so no mistakes may result.

STRIPED OR PARTIAL RED VARIETIES		Extra	Fancy
Delicious	66 2/3%	25%	
Stayman Winesap	66 2/3%	25%	
Black Twig	50%	25%	
Ben Davis	50%	15%	
Bonum	50%	15%	
Fameuse	50%	15%	
Geniton	50%	15%	
Hubbardston	50%	15%	
Jonathan	66 2/3%	25%	
Limburtwig	50%	15%	
Missouri Pippin	50%	15%	
Northern Spy	50%	15%	
Ontario	50%	15%	
Red Astrachan	50%	15%	
Rainier	50%	15%	
Rome Beauty	*50%	15%	
Salome	50%	15%	
Stark	50%	15%	
Sutton	50%	15%	
Willow Twig	50%	15%	
Wagener	50%	15%	
Wealthy	50%	15%	
York Imperial	50%	15%	
Alexander	25%	10%	
Chenango	25%	10%	
Gravenstein	25%	10%	
Jeffries	25%	10%	
King	25%	10%	
Oldenburg	25%	10%	
Shiawassee	25%	10%	
Twenty Ounce	25%	10%	
* No color requirement on Beauty 96 and larger.		Fancy	Rome

OREGON

DURING the height of the pear and evergreen blackberry rush at Salem the King's Food Products company employed 650 people at its dehydration and canning plants. The Oregon Packing company at the same time was employing 375 persons and the Hunt Bros. cannery 450.

THE apple crop at Dufur, produced almost entirely on the 1800 acres of bearing trees of the Dufur Orchard company, is forecast as 250 cars by J. Arthur Riggs, district representative of Sgobel & Day.

AN ALL-DAY session of association members packing prunes of the Mistland brand was held September 11 at Salem. Many phases of production, picking, grading and packing were discussed.

A CROWD of 200 persons participated in a celebration on September 16 at Orenco, marking the first ripening of the celebrated Coates date prune. Speakers included M. McDonald, president of the Orenco Nursery company; Professor W. S. Brown, chief in horticulture, Oregon Agricultural College; H. S. Gile, Marion County grower, and Walter Stoltz, of Salem.

ESTIMATE has been made that 20 carloads of grapes will be shipped this season from the Grants Pass district. The crop in Josephine county is unusually large and of fine quality.

ENROLLMENT at the packing school of the Apple Growers' Association at Hood River aggregated 92 persons on the opening day, a larger number than ever before registered. W. J. A. Baker was in charge.

policy is made possible because 75 to 80 per cent of the year's crop is already sold.

WASHINGTON

THE Wenatchee District Co-operative Association is erecting two new warehouses and has acquired two others in preparation for the apple shipping season. The new structures are going up in Leavenworth and at Chelan Falls.

THE Northwestern Fruit Exchange a month ago moved its general sales office from Seattle to Wenatchee. H. G. Fletcher, vice-president in charge of sales, together with about a dozen assistants and employes were transferred.

WAGES in the industry at Yakima are the same this year as last. Five cents a box is being paid apple packers and sorters receive 25 or 30 cents an hour, depending upon skill and previous experience.

MATTHEW KRAMER and J. E. Maher have sold their 27-acre orchard on Naches Heights at Yakima to Henry A. Schultz for \$35,000. In the deal Mr. Maher obtained Mr. Schultz's lower valley apple orchard for \$14,000.

IN PREPARATION for inauguration of joint federal and state inspection in Washington an inspection school was recently held at Wenatchee. It was under direction of F. S. Kinsey of the federal bureau of agricultural economics.

R. C. ROBINSON of Robinson Brothers' Fruit & Produce company, Walla Walla, has sold his interest in the business to his brother, Lee Robinson, and will devote his time to his ranch at Hanford.

PROFESSOR E. J. NEWCOMER of the United States bureau of entomology, who has for nearly four years been at work in the Yakima Valley investigating life history of the codling moth, has recently been giving attention also to the red spider. This pest is quite prevalent there now, it is said.

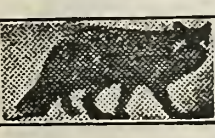
THE Puyallup & Sumner Fruit Growers' Cannery Company plants at Sumner and Puyallup and at Loveland, Colo., were recently purchased at receiver's sale by G. H. Bradt of San Francisco. The price was \$270,000.

APPLE growers of the White Salmon district conducted a packing school this season, directed by A. E. Mills, horticultural inspector for the district.

AT WENATCHEE the Fruit Growers' Service company has constructed a large warehouse, two stories and basement, which will have a capacity of about 70 cars of apples.

DIRECTORS of the Spokane Valley Chamber of Commerce have decided to hold an apple show this season. It will probably be held in December at the Otis Orchards clubhouse, a few miles from the business section of Spokane.

C. H. FEILBERG, president of the Spokane Cider Mill company, reports that he has perfected a process to preserve apple cider by evaporation. His process has been investigated by many orchardists and similar plants in many districts are in prospect.



Pedigreed Silver and Cross FOXES for sale. Prices Reasonable. Write for information.  
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Do not adulterate these sulphurs with any inert material such as Lime or Kaolin, etc. Coating the sulphur particles with an inert material PREVENTS the FUMING ACTION caused by the sun's rays.

TRY OUR "ALFA" BRAND DRY WETTABLE SULPHUR  
Send for Circulars 6, 8 and 10 about our "Toro" Brand Agricultural Compound and booklet "The Truth About Sublimed Sulphur," also price list.

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Hawkeye Fruit Baskets



## CALIFORNIA

**T**OTAL freight shipments of fresh deciduous fruits out of California this season are 11,327 carloads up to August 26. This is only slightly less than the shipments up to the same date last year when they totaled 12,893 carloads, or to the same date in 1920 when they totaled 12,733.

**W**ALNUT growers of California estimate that this season's crop will be 50 per cent greater than that of last year, when the total was 20,100 tons. It is expected to set a new record above that of 1919, when 28,100 tons were produced. The sizes promise to be large.

**S**TRAWBERRY growers of the Porterville community promise that next season they will send a carload of berries into San Francisco daily between April 1 and August 15.

**A** NEW evaporating plant and vinegar factory is to start operations at Santa Clara, this month.

**I**T IS claimed that 52 per cent of the nation's cling peach crop is now produced within a radius of 12 miles of Marysville. Thousands of young trees came into bearing there this season.

**W**ILLIAM R. NUTTING, a trustee and one of the organizers of the Sun-Maid Raisin Growers, died recently at Grants Pass, Oregon, at the age of 71.

**M**ISS MABEL MORGAN is reported to have packed 460 boxes of peaches in one day at Atwater. She received 4 cents a box for the work.

**T**HE Duarte plum, a little known variety, is said to be making a very favorable record and reputation in some districts, particularly in the foothill regions.

**D**ECIDUOUS fruit shipments by the Pacific Fruit Express reached the 10,000-car mark on August 27. By the same date in 1921 the company had shipped 9238 cars.

**A** LARGE prune packing plant has been constructed at Colusa by the California Prune and Apricot Growers.

**A**PPLE storage at the end of August in Los Angeles this year totaled 7053 boxes as compared with 12,659 at the same time in 1921.

**S**IXTY acres of three-year-old pear trees on the Reed-Wolfskill orchard in Yuba county is reported to have yielded 100 tons of fruit this season.

**N**ORTHERN CALIFORNIA shipped 631 cars of pears during the week ending August 25, as compared with 210 carloads in the corresponding week a year ago.

## IDAHO

**I**T IS estimated that 300 cars of apples will be sent out from the 2700 acres of commercial orchards in the Lewiston-Clarkston section this year. Movement of peaches, which was heavy, closed about ten days ago.

**N**ORTHERN Idaho fruit men, in a recent conference in Spokane, determined to ask the next legislature to establish plant inspection stations at Sandpoint, Weiser and Pocatello.

**F**ROM one-fifth of an acre of raspberries Jacob Gushwa of Prosser, obtained a yield of more than 135 crates.



Follow the Violet Lines. There is Merit in the Wrapper.

**"CARO"**  
*fruit*  
**WRAPPERS**



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**PROTECTS**

**"Caro" Protects—"Caro" Prolongs the Life of Fruit—Why?**

CHEMICALLY TREATED WITH BORDEAUX MIXTURE

FRUIT MATURITY is retarded by cold or refrigeration and hastened by heat or atmospheric exposure.

The soft fibrous silk-like texture of "Caro" provides just sufficient ventilation to retard the ripening process.

FRUIT DECOMPOSITION starts from a bruise which opens tiny holes and permits juice to escape and BACTERIA to enter. "Caro" clings closely and dries up the escaping juice. "Caro" ingredients harden the spot, destroy BACTERIA and FUNGUS SPORES and arrest decomposition.

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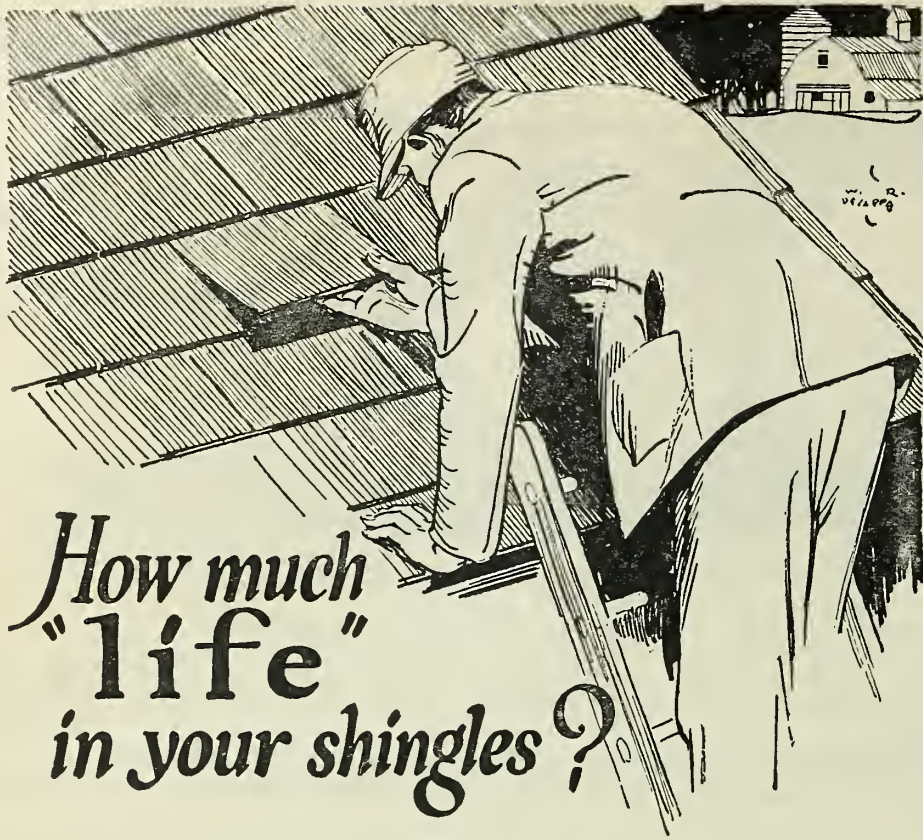
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STANDARD OIL COMPANY  
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# ORONITE SHINGLE OIL

## Nut Growing in the Northwest

(Continued from page 17)

The reconstruction and reclamation of the vast areas of cut-over stump lands from barren wastes to productive nut groves is certainly an economic thought. Nut trees will grow from the rich alluvial soil of the valley lands to the steep sloping clay hillsides. Hence, they are adapted to extensive panting from a reforestation standpoint or an intensive, closely cultivated development. In the planting of large areas they could be bunched in groves among the stumps, several varieties mixed, and given only such care as is necessary for their protection from the natural brush and grasses.

Sheep could be pastured among them which would consume the grass and underbrush and produce a revenue from the land which would provide for the overhead cost of maintenance.

As the stumps decayed and were removed by mechanical or other means the plantings could be extended or placed under intensive cultivation.

VALUE AS FOOD—Probably the value of the nut as an article of food never has been impressed upon the minds of the present generation as it was during the food regulations of the past war period. In studying the habits of the early peoples of the American continent we find that nuts were extensively used by them as an article of food. In fact, we find traces of the nut foods in histories of all of the pre-historic tribes. When our forefathers came to this continent, they found many kinds of nuts growing wild and bearing abundantly. They brought with them some of the European nuts and fruits and planted them in the virgin soil, finding that the most of them seemed to thrive under the existing conditions, although they did not give them special attention.

That the food value of the nut is being little appreciated can be proven by the greatly increased number of products we find upon the markets in the form of confectionery, beverages, flours, pastes, butters, preserves, meats, oils, and even some fill the place of the fuel product. The nut as a food carries a high percentage of protein and fat, filberts 15.5 per cent. The peanut carries 29.8 per cent protein, the butternut 27.9 per cent which supasses most animal or vegetable products. Round beefsteak only carries 27.4 per cent, potatoes 22.5 per cent, wheat flour 11.4 per cent, while in fats the contrast is greater.

The peanut carries 62 per cent, filberts 64 per cent, the butternut 61 per cent, hickory nut 62.6 per cent and walnut 60.7 per cent while the beefsteak carries 13.6 per cent fat, eggs 10.7 per cent, wheat flour 1 per cent, beans 1.8 per cent, potatoes .1 per cent, and apples .5 per cent.

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## Marketing News of Interest

APPLE shipments for the week ending September 16, are shown by the federal report as 1,996 cars from all sections, compared with approximately the same volume of shipments for the corresponding week last season and with 1,817 cars for the previous week this year. Shipments from box states for the week were 365 cars vs. 794 cars for the same week last year and 282 cars for the previous week this season.

From the barrel states the week's movement was 1,631 cars compared with 1,150 cars for the same week in 1921 and with 1,535 cars for the previous week this season.

Movement from all sections since the opening of the season to the fore part of the week has been 11,883 cars or considerably above the 8,273 car movement for the same portion of last season. Of the season's total 1,975 cars were from box states and 9,908 cars from barrels sections. For the same period last season the movement was 2,760 cars from box states and 5,513 cars from barrel states.

▲ ▲ ▲

APPLE harvest at Hood River, is now fairly well under way and growers of all districts are picking Winter Bananas. Jonathans have not colored sufficiently, due to lack of frosty nights. With plenty of water available the fruit is taking on an extra size, and the general run of apples this season is going to be unusually large. The increased size is adding to troubles of growers, almost all of whom report a need of more boxes. It appears that the total crop will reach well up to 3,000 cars.

▲ ▲ ▲

LOUIS THUN, county commissioner of Skamania county and orchardist of the Underwood section, Washington, reports that he and his neighbors have sold all of their Delicious at \$2.25 for extra fancy and fancy. He says the C-grade fruit will be disposed of in the canning grade. Growers of Underwood, he says, are being offered \$10 per ton for canners. The Underwood district has begun its harvest. D'Anjou pears there have all been picked.

▲ ▲ ▲

THE 1922 loganberry crop of Lane county, Oregon, amounted to 654,312 pounds, according to figures compiled by the Eugene Fruit Growers' association. This represents receipts at the three canneries of the association.

▲ ▲ ▲

RECENT closing of the strawberry pool of the Hood River Apple Growers' association showed that 83,506 crates were handled at an average price of \$2.27 a crate. In 1921 the average price was \$2.85. The association sold 198,000 pounds of canning berries at 6¼ cents a pound.

Cherry returns of the association for the season were:

Bings, \$2.13 per 16-pound box; Lamberts, \$2.29 and Black Republicans, \$1.44. The black cherry tonnage reached 8,934 boxes. Canning cherries sold as follows: Royal Anns, 64,419 pounds at 9¼ cents, and Governor Woods, 3,748 pounds, at 7¼ cents.

▲ ▲ ▲

EFFORTS of the Yakima peach growers to hold the price of peaches to 60 cents a crate were not successful as quotations went out at the end of August offering them at 50 cents. The upper valley growers have organized and signed up 225,000 boxes to be marketed through the newly organized Northwest Sales Corporation, an organization fostered by the farm bureau.

COOLER weather caused a much better feeling in the apple market, says the latest report from New York. Box apple receipts are showing considerable increase and there are fair supplies of barrel and basket fruit from the east on the market. Prices are firmer than they were a week ago. All the early varieties of barrel apples sell mostly under a range of from \$2 to \$3.50, with McIntosh reaching \$5.

California Gravensteins and Oregon Winter Bananas range from \$1.25 to \$2 per box.

▲ ▲ ▲

QUOTATIONS on Jonathans started at Wenatchee at \$1.65, f. o. b. cars, but were reported to have dropped as low as \$1.25 three or four weeks ago, with few being sold. The highest cash offer made on Winter Bananas was \$1.75 to the grower, and this was quickly withdrawn as the dealer received all he could handle within a few hours. For Delicious, \$2 is asked by growers for extra fancy, while other varieties are in proportion. Winesaps are in a stronger position than any others. The crop is short and there is still plenty of time for the market to improve before harvest. Some crops have been sold at \$1.50 for Extra Fancy to the grower.

### Dock Storage Planned

Space for the storage of approximately 300,000 boxes of apples will be ready about the end of next month at Terminal No. 4 in Portland. The contract for construction of a ventilated warehouse of this capacity was let during the past month, the cost to be a little more than \$110,000. The structure is to be 610 feet long by 120 feet wide. The walls will be of hollow tile and a special ventilating system is to be installed. Though not having all advantages of a refrigerated pre-cooling plant the new warehouse will prove of immense benefit to those shipping apples through the port of Portland.

### Shipping Via Canal

(Continued from page 6)

company, was largely instrumental in persuading his London office to inaugurate this service, which has since more than justified all that had been anticipated.

The lower cost of shipping apples direct from the coast, rather than via New York, amounts to an average of four cent per box. This in itself is an inducement to the shippers to choose the former route, but in addition, the apples arrive in better condition. This largely explains why the Panama direct route has become so popular with apple shippers. From a few thousand boxes shipped in 1920 the business increased to almost three-quarters of a million boxes in 1921, while this year the total shipments should touch the million mark.

The capacity of coolroom space available for apples varies from 25,000 to 150,000 boxes on each ship. Care, however, is taken to regulate the sailings of each refrigerator ship in order that two ships do not arrive at too short intervals, thereby causing a glut in any particular market.



Quality—economy—  
comfort—low price—all  
right and all there

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20 in. wide by 25 in. high.....80c  
A dozen different sizes in stock for prompt shipment.

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One panel doors, at each..... 3.80

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Protects poultry against vermin—Preserves wood against decay. When you buy Carbolineum be sure you get Carbolineum and not something called just as good. Write for prices and circulars.

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Manufacturers of Bee Keepers  
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## With the Poultry

### CHICKEN RAISING RULES

IT IS the ambition of nearly every farm wife that her poultry shall look better and produce better than any other flock in the neighborhood. Many essentials of success in poultry raising may be gleaned from the experience of others, but there are a great many more which the breeder must learn for herself. The following rules have been selected from a number of theories which have been practiced successfully:

1. Hatch all heavy breeds before May 1.
2. Frequently clean and disinfect the brooder house and equipment.
3. For six weeks feed no liquid other than milk.
4. Continue to feed milk in some form throughout the summer.
5. From the first week, until maturity, feed a dry mash containing animal protein.
6. Move colony houses or brood coop to fresh ground before chicks are turned out.
7. Keep growing chicks and laying hens separate during the summer.
8. Separate the sexes when birds are eight weeks old; sooner if sex can be determined.

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### SELL ONLY CLEAN EGGS

DIRTY eggs are a second-rate product on any market, so are washed eggs. This means that the egg must be produced clean, which further means clean nests and clean feet.

Clean nests are easy—comparatively. A change of nesting material whenever it gets dirty will do away with the danger of soiling from this source, and special care must be taken to see that the birds do not roost on the edge of the nests at night.

Keeping the birds' feet clean is a much more difficult proposition. First of all it is most essential to have a clean doormat in the shape of fresh litter and plenty of it on the floor at all times; secondly, do not let the birds out on muddy days when their feet are bound to get daubed up.

Most important of all, keep the dropping boards clean. Daily scrapings are preferable, but if a poultry man feels that he has not the time for this, they should be cleaned at least twice a week. A cage of one-inch or one and one-half inch poultry wire tacked under the perches and over the dropping boards will prevent the birds from walking on the boards, and incidentally will catch any eggs that are dropped in the night.

Even with this extra care, the poultryman must expect some dirty eggs, and a word of advice on how to clean them might be timely. The so-called plain dirties, those soiled by dirty feet and dirty nests, are easily cleaned with a soft, damp cloth, which should be used only on dirty spots. Be careful not to rub them dry, but to allow them to dry by standing in the air. It is very important that the gelatinous coating which seals the egg should not be soaked off, as this covering is germ-proof and serves as a natural means of keeping the eggs fresh.

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### HOW TO SHIP EGGS

TO INSURE against the breakage of eggs in transit the American Express company and the American Railway association recommend these simple rules:

1. Use only new standard fillers. A filler is strong enough for one trip only, hence there is no such thing as a "good" second-hand filler. The use of second-hand fillers is prohibited by both the freight and express regulations.
2. Use six four-ounce excelsior pads to the case, one on top, one on bottom and one under

top layer of each side. Best results are obtained by not inserting a flat where a pad is used. Do not use loose excelsior in cushioning eggs. More damage occurs in eggs packed with loose excelsior than with any other method of packing. Six pads give much greater protection than four pads, because the latter do not hold fillers firmly in place.

3. Use only standard cases (preferably new), making sure center board is exactly in center, and see that cases are carefully nailed in accordance with the requirements.

4. If eggs are shipped in carloads, baled hay, straw or excelsior should be used as buffing to prevent shifting of cases in transit. If dimensions of car permit, the empty space should be equally divided between ends and center of car, and the buffing material rammed in as tight as possible, just as taken from the machine-pressed bale, and such spaces should be completely filled. This buffing should be applied as the loading progresses.

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THE amount of food that a hen can consume is no indication of the number of eggs she will produce, and there must be sufficient to enable the hen to produce eggs after having first supplied her bodily needs. The feeder must use judgment in the matter and will probably not learn it all in one year.

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FOWLS generally leave the perches in the morning ready for something to eat; and if fed a soft feed of about two-thirds or a little more of what they would eat if allowed all they wanted, will be in good condition to work during the day for the whole grain and if fed enough of this will repay their owners with interest for the cost of their living.

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IT IS a common thing for over-fat hens to lay soft-shelled eggs. Where fowls are supplied with a variety of food, grit and water, and the hens continue to lay soft-shelled eggs, you can safely reduce the ration and promptly correct the trouble. Sometimes this condition may be the result of a diseased oviduct, but nine times out of ten it can be traced to over-fat.

## Washington Growers' Corporation Notes

THE third annual prune festival, planned for October 12, 13 and 14, is this year attracting more attention than ever before. Letters have been received from many cities of the northwest asking about accommodations for visitors. The answer to these is that Vancouver will be ready to take care of all that may come.

This celebration is intended as a sort of thanksgiving for a bountiful crop—for the successful packing of \$1,000,000 worth of prunes. On the first day occurs the selection and crowning of the queen. There will be an inaugural parade in which will participate the queen, the Prunarians and band, soldiers from Vancouver Barracks and sailors from the vessels in the harbor.

The second day will be one of visits to the warships, a children's parade in which the schools of the entire county participate and, in the evening, a parade of all booster organizations at the festival. On Saturday afternoon, the final day, there will be a Pageant of the Products in the city park, given by a specially instructed class of 100 girls. In the evening is to occur a fraternal parade and competitive drills of the various organizations.

It is needless to say that there will be dancing and other attractions each evening of the festival.



## Bees and Beekeeping

Edited by AMOS BURHANS

### WINTERING BEES IN CANADA

THE best method of keeping bees over the winter is a matter of prime importance to the beekeeper. For this reason, experiments conducted by the Dominion Experimental Farms' System are of special interest. These experiments have been carried out at 16 of the farms in different sections of the country. As it is impossible in a short space to outline the results secured at all the farms, it is as well to relate some of the results at the Central Farm, Ottawa. In his report, covering the twelve months ending March 31, 1921, the late F. W. L. Sladen, the Dominion apiarist, states that for three years experiments have been made with a system of wintering two queens in a hive.

Under this system it was found that a larger number of bees could be reared in the time for the clover flow, than if only one queen was wintered. The two queens were usually introduced at the time of treatment for the prevention of swarming. Instead of leaving one queen cell at the second time the queen cells were destroyed, two queen cells were left, one on each side of the division board then inserted. A special portico was fitted into the front of the hive to provide separate exits. If no brood was found on one side when the white honey crop was removed, the division board was taken out and the colony reverted to a one queen colony.

A week after the first young bees emerged, the outside comb was placed next the division board to permit continued expansion of the brood cells. The stronger of the colonies was placed in a separate hive two or three weeks later when the dandelion was starting to yield. This prevented early swarming. Mr. Sladen did not recommend the two-queen system for general adoption throughout the country, although the returns were exceptionally high from the Jumbo hives. Forty-six colonies at Ottawa last winter were fed an average of 44 pounds 6 ounces of syrup, consisting of two parts sugar to one of water by measure. For every nine pounds of syrup the average gain was five pounds four ounces. The feeding was done between October 2 and 19.

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### PROFESSOR SCULLEN'S SUGGESTIONS

A LARGE number of young workers to form the winter bee cluster, plenty of food to last through the winter, and reasonable protection from cold and dampness, are three primary factors in successful beekeeping in Oregon, according to H. A. Scullen, commercial bee man and extension specialist at Oregon Agricultural College.

Every colony should have been headed by a vigorous young Italian queen bred from the best, Mr. Scullen declares. She should be provided with stores and comb enough to rear at least 15,000 young workers.

The leading honey plants of this section—fireweed, alfalfa and sweet clover—are good for wintering. Unless the bees are supplied with 40 to 50 pounds of honey in the latter part of October or first of November in most parts of the state, a thick syrup of 1 part water to 2½ parts sugar should be fed them. A teaspoon of tartaric acid is added to 15 to 20 pounds of sugar, and care must be taken that the sugar is not scorched in the making. Heating is continued only till all the sugar is melted.

The kind and amount of protection needed will vary in different sections. Packing of some kind generally pays. The packing case of lumber filled with dry shavings or like matter, or building paper wrapped about the hive with some

packing between and some packing below and above, is commended for the wet districts. More protection may be needed in the colder parts of the state.

Care is advised to prevent the prevailing winds from blowing into the entrances. If sheds are used the roofs should be high enough to allow manipulation of the bees and entrance of the morning and evening sun.



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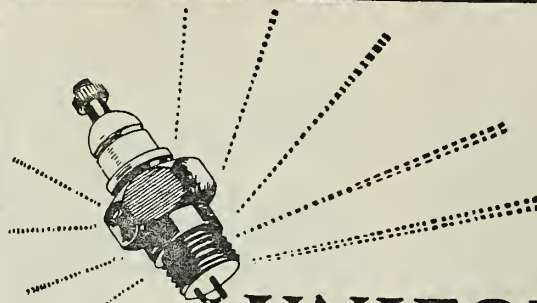
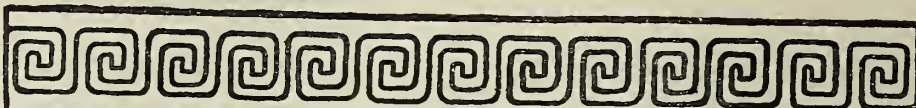
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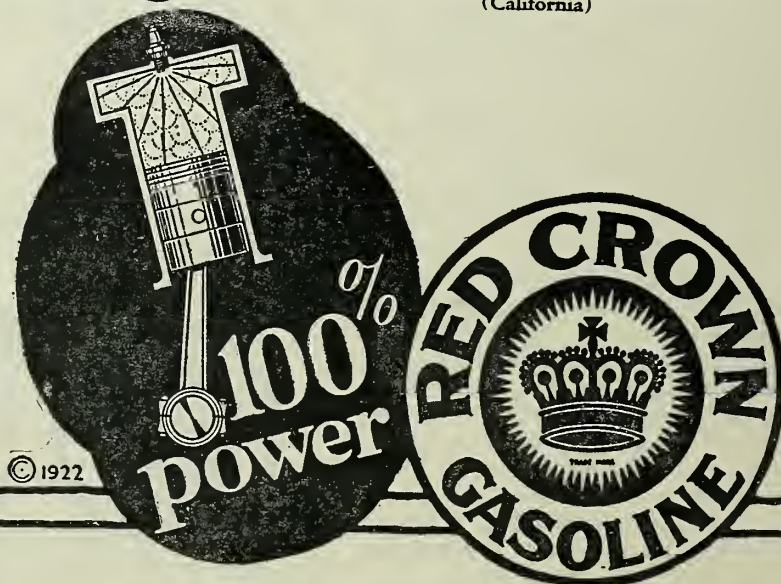
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